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ABSTRACT

The Columbus, Ohio Public Schools operate four vocational career centers: Fort Hayes Metropolitan Education Center (MHEC), Northwest, Northeast, and Southeast Career Centers. These Centers offer vocational curricula, while maintaining academic standards similar to the learners' home schools. However, Fort Hayes MEC also has the distinction of being an accredited high school as well as a career center, and students spend the entire day there. The other three centers have learners on a half day basis. As is consistent with state policy, all centers use three of the ACT Work Keys tests as entry and exit examinations. Each Center uses the PLATO (registered) Learning System aligned for Work Keys. The PLATO program includes a number of courses from the PLATO Work Skills curriculum and the PLATO core skills curriculum. An evaluation of the PLATO programs used shows that the results over two academic years exceeded statewide results consistently and by a wide margin. While the percentage of learners gaining at least one level statewide actually declined from 1995 to 1997, the Career Centers Program saw between 23% and 46% of its learners advance by at least one level. More detailed analyses at the Fort Hayes MEC were even more impressive. Results were thus greater in a PLATO-only laboratory with the most intensive pattern of use than in labs using a combination of instructional software than included PLATO. (Author/SLD)

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PLATO®

Evaluation Series

Columbus, Ohio Public School Career Centers

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Executive Summary

The Columbus, Ohio Public Schools operate four vocational career centers: Fort Hayes Metropolitan Education Center, Northwest, Northeast, and Southeast Career Centers. These Centers offer vocational curricula, while maintaining academic standards similar to the learners' "home" school. However, Ft. Hayes MEC also has the distinction of being an accredited high school as well as a career center. The students who attend both the career center and the high school spend the entire day at Ft. Hayes. The other 3 centers have learners on a half day basis, with the learners spending the rest of their time at their home schools. Consistent with state policy, all centers use three of the *ACT Work Keys* tests as entry and exit exams for all learners.

The results obtained over two academic years and four programs in Columbus exceeded state-wide results consistently and by a wide margin. While the percentage of learners gaining at least one level statewide actually declined from 1995 to 1997, the Career Centers program saw between 23% and 46% of its learners advance by at least one level.

More detailed analysis of the Ft. Hayes MEC are even more impressive. At Ft. Hayes MEC:

- Learners in the Child Care career track, who used PLATO® courseware related to their program but not aligned to the Work Keys curriculum, showed a pattern of declines.
- Learners in the Academic Enhancement Program (AEP) lab, using PLATO courseware and other instructional software, showed gains comparable to the average of all four AEP labs in all of the Career Centers.
- The learners in the Data Processing career track, who used only PLATO, showed the broadest pattern of gains.

Thus, results were greater in a PLATO®-only lab with the most intensive pattern of use than in labs using a combination of instructional software including PLATO.

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Introduction

The Columbus, Ohio Public Schools operate four vocational career centers: Fort Hayes Metropolitan Education Center, Northwest, Northeast, and Southeast Career Centers. These Centers offer vocational curricula, while maintaining academic standards similar to the learners' "home" school. However, Ft. Hayes MEC also has the distinction of being an accredited high school as well as career center. The students who attend both the career center and high school spend the entire day at Ft. Hayes MEC. All centers have learners on a half day basis. The learners then spend the rest of their time at their home schools.

Consistent with state policy, the Centers administer ACT's *Work Keys* test to measure the progress of learners and their readiness for their chosen careers. The *Work Keys* system was chosen by the State of Ohio because it provides a profile of skill levels on eight scales which have been shown to predict success on the job. Each target occupation is analyzed to determine the needed profile of skill levels on the eight Work Keys scales. This makes it possible to match particular learner profiles to particular jobs. The tests require application of core skills to problems which closely resemble those found in work settings. They are carefully graded by level of difficulty. The *Work Keys* tests are reported on scales with up to 5 levels.

The Centers administer only the tests for three of the *Work Keys* scales:

- *Locating Information* (interpreting text and non-text information)
- *Reading for Information*, and
- *Applied Mathematics*.

The Work Keys tests are given as a pretest in the fall at the beginning of the program, and as a posttest in the spring of the end of the program. Most programs are 2 year programs, which the learners start when beginning their junior year of high school. Results of these tests are placed in the learner's Career Passport and are presented to employers during the interview process as proof of academic competencies.

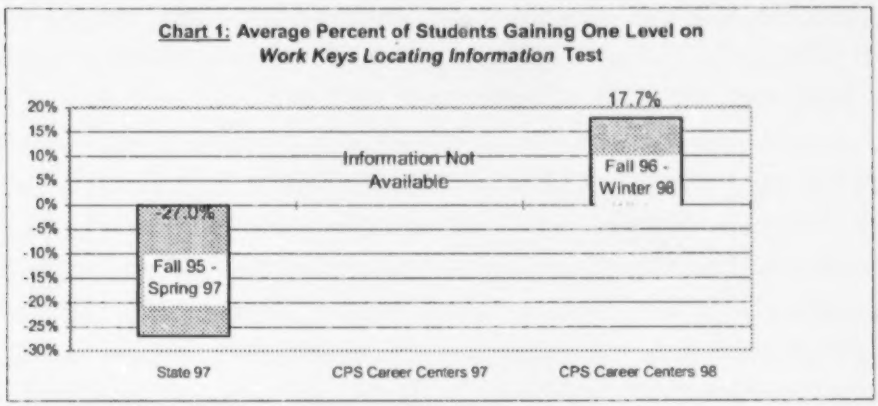
To develop work-related reading and math competencies for its learners, the Columbus Career Centers have created the Academic Enhancement Program (AEP). To support the program, each Center was equipped in 1993 with computer labs and educational software, with the PLATO® Learning System being added in 1996. At least 25 workstations are located in each AEP lab, while Ft. Hayes MEC has six additional workstations located in its library, and 25 workstations located in the Data Processing lab. The PLATO® alignment used is designed specifically for Work Keys, and includes a number of courses from the PLATO Work Skills curriculum as well as the PLATO® core skills curricula.

Learners are scheduled regularly into the lab, and also can continue work during free periods in the lab or library. Lab instructors and the program instructor for each career program work with the learners in the lab. Both are accredited teachers. The vocational instructor works closely with the lab instructor to align the learners' classroom activities with their lab activities. Each AEP lab also has a full-time instructional assistant. Most of the career centers have created custom activities to correspond with the needs of the learners, and do not necessarily use the Work Keys alignment as provided.

Work Keys Results: All Centers

Summaries of Work Keys gains for all four Career Centers are available for 1997 and 1998. They may be compared to statewide figures.

Chart 1 summarizes the average percentage of learners across all four centers who progressed by one level on the *Work Keys Locating Information* test.



The chart shows that in 1998 an average of 17.7% of Career Center learners gained one Work Keys level. This compares to a decline of one level by 27% of learners state-wide between Fall, 1995 and Spring, 1997. All remaining learners showed a change of less than one level.

Chart 2 shows the average percentage of learners in all four Career Centers who gained one level on the *Work Keys Reading for Information* test.

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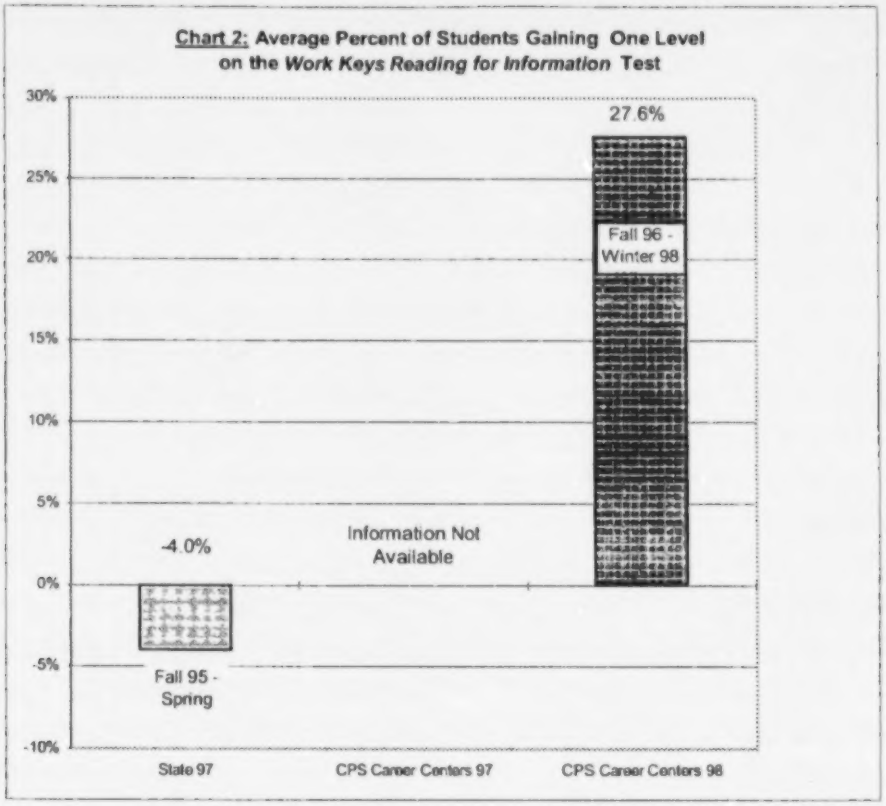

The chart shows that an average of 27.6% of Career Center learners gained one Work Keys level in 1998, compared to a state-wide decline of at least one level by 4% of learners in between Fall 1995 and Spring, 1997. All remaining learners showed a change of less than one level

Chart 3 shows the average percentage of learners in all four Career Centers who gained one level on the *Work Keys Applied Mathematics* test.

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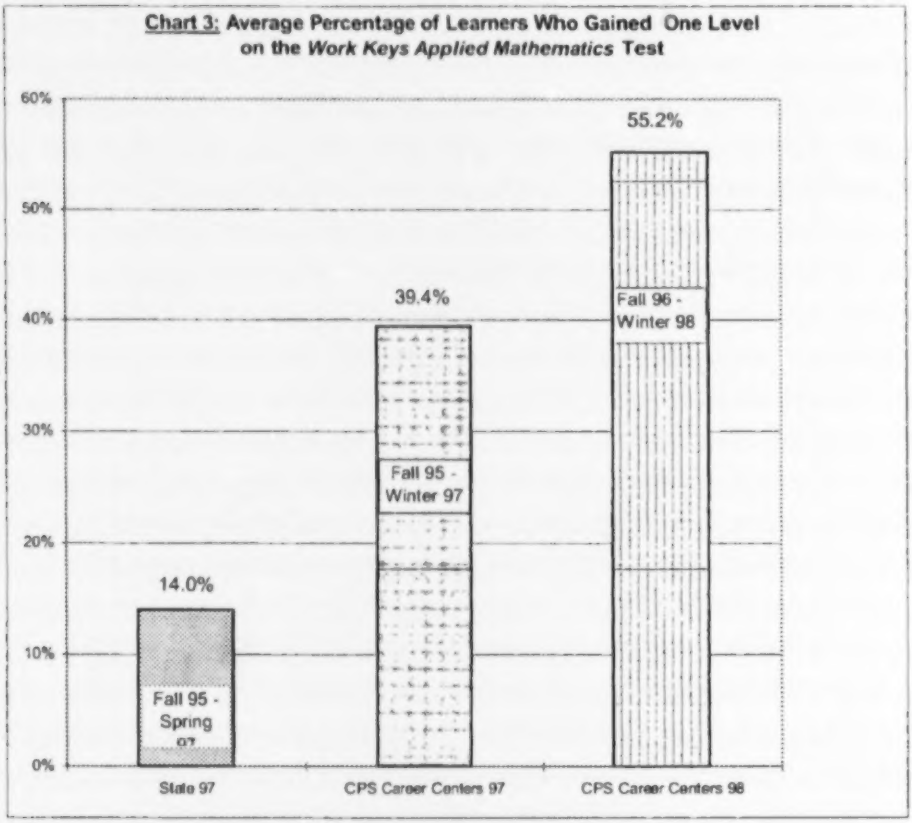

The chart shows that in Applied Mathematics, an average of 39.4% of Career Center learners gained one Work Keys level in 1997, while state-wide that much gain was achieved by 14% of learners. In 1998, an average of 55.2% of Career Center learners gained at least one Work Keys level. All remaining learners showed a change of less than one level.

To summarize, in 1997 and 1998, the four Career Centers with their PLATO-equipped Academic Enhancement Program labs averaged learning gains of at least one *Work Keys* level by between 17% and 55% of their learners, across the three *Work Keys* tests administered. This contrasts with a state-wide decline of at least one level by 27% and 4% on two of the tests, and an increase of at least one level state-wide of 14%. This represents a performance by the Career Centers which was as much as 4 times better than the state-wide figures.

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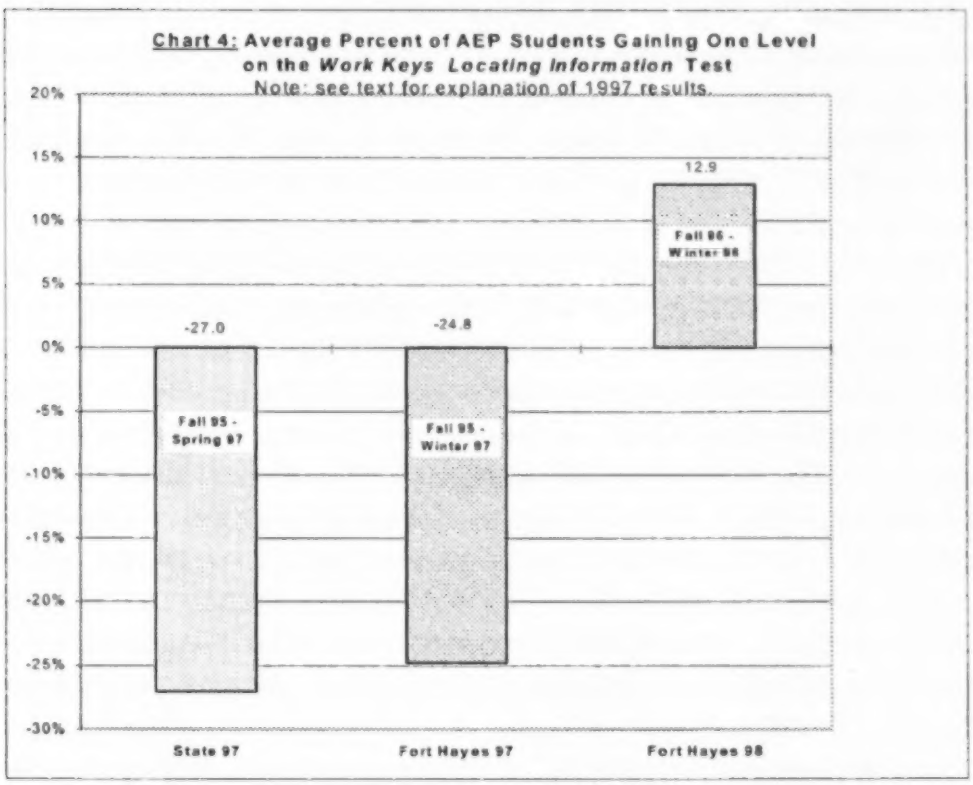
Work Keys Results: Fort Hayes MEC

Detailed data are available for the Fort Hayes MEC, for both the AEP lab and another lab dedicated to the Data Processing career track.

Academic Enhancement Program

In the Ft. Hayes AEP lab, learners achieved these results in 1998 (data for 1997 are not available except in Math). In 1998, the AEP lab served approximately 140 learners.

Chart 4 shows the percentage of AEP learners who gained one level in 1998.



The chart shows that in 1998, 12.9% of learners gained at least one level on the Work Keys *Locating Information* test. This compares with a 1997 state-wide decline, mentioned above, by 27% of learners on this test. Unfortunately, in 1997 at Fort Hayes not all learners took the test seriously, and the results showed a sharp decline. All other learners showed a change of less than one level.

Chart 5 shows the results for the *Work Keys Reading for Information* test.

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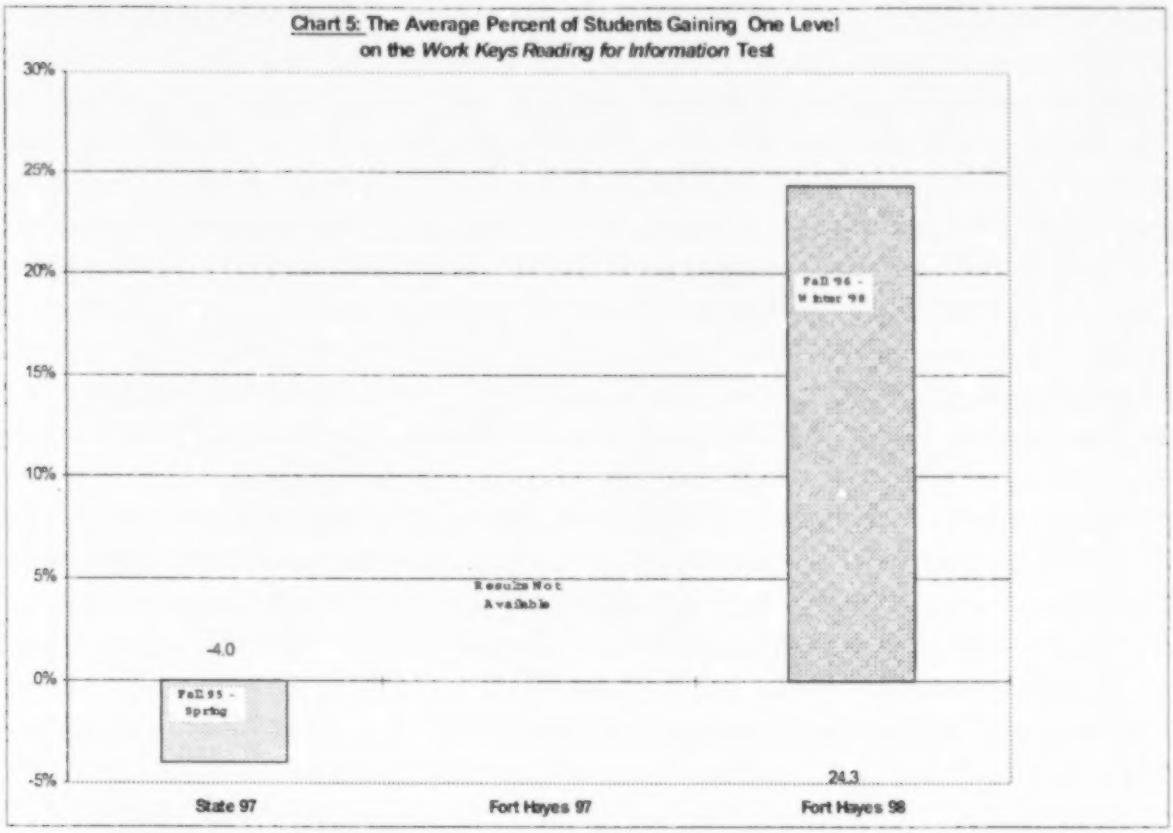

Chart 5 shows that on the *Work Keys Reading for Information* test, 24.3% of Fort Hayes MEC AEP learners gained one level in 1998. This compares with a decline by 4% of learners state-wide of at least one level. Fort Hayes data for 1997 were not available.

Chart 6 shows results for the *Work Keys Applied Mathematics* test.

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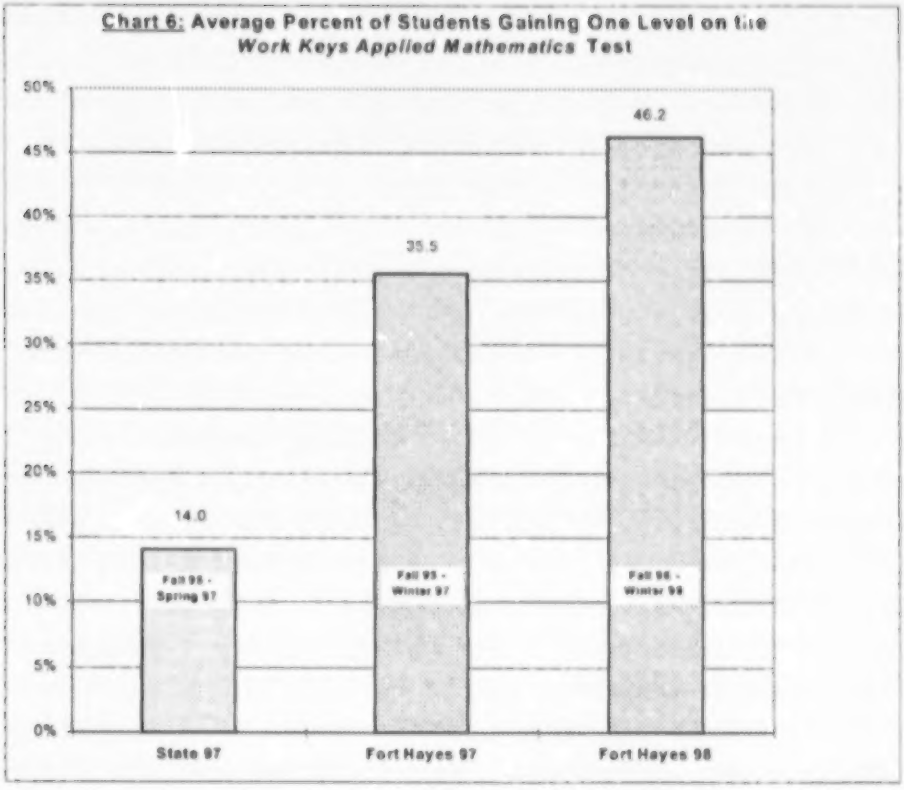

The chart shows that on the *Work Keys Applied Math* test, 35.5% of learners gained one level in 1997, and 46.2% gained at least as much in 1998. This compares with a statewide gain by 14% of learners.

In sum, on the three *Work Keys* tests, in 1998 as many as 46% of the Fort Hayes MEC AEP learners progressed at least one level. This compares with declines between 1995 and 1997 state-wide on two of the tests, and a gain of 1/3 as much on the third.

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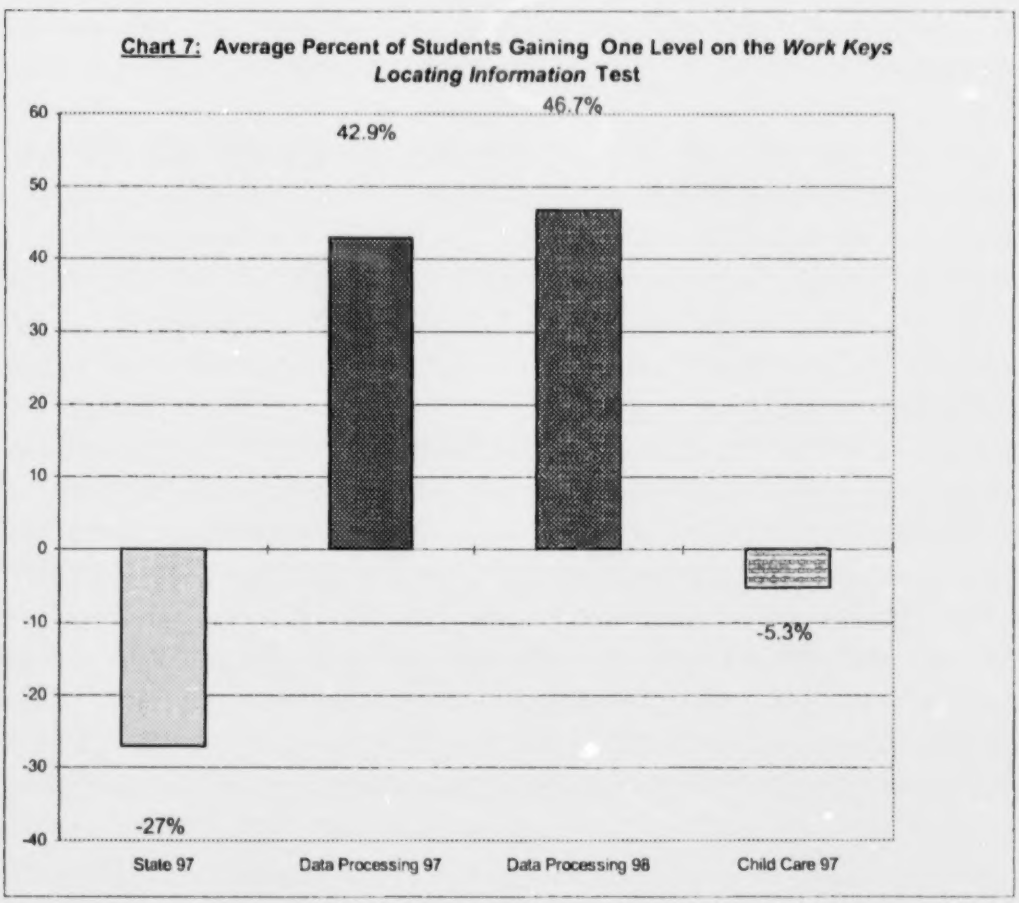
Comparison of Data Processing and Child Care Career Tracks

At Fort Hayes MEC, the Data Processing career track teaches office skills (word processing, spreadsheets, etc.). It is equipped with its own PLATO lab and no other instructional software. Learners meet for a half day, five days per week. Approximately ½ hour per day is spent on PLATO, and the work is integrated with the class. As in the AEP, the instructor works closely with the learners as they study PLATO. Progress is self-paced, and learners are graded on the number of modules mastered. In 1998, the DP program served 17 learners.

For comparison, results are shown for the Child Care career track, in which PLATO *Life and Job Skills* and *Parenting* curricula were used, but the *Work Keys* curriculum was not emphasized. In addition, the state-wide results are repeated.

Chart 7 shows the percentage of learners who progressed one level on the *Work Keys Locating Information* test.



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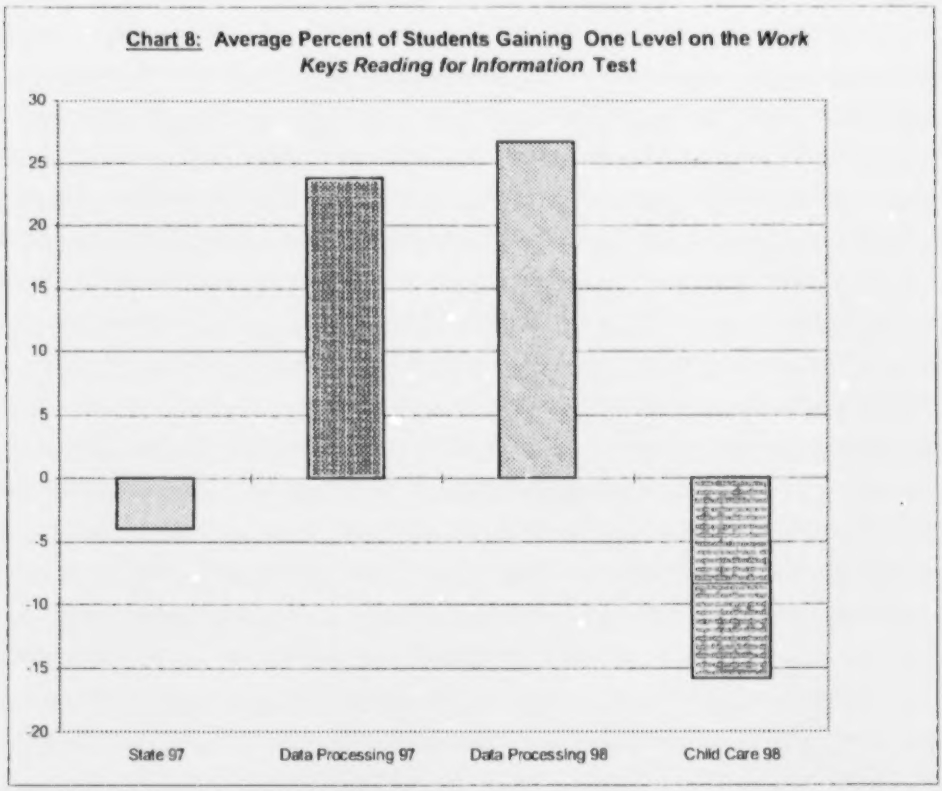
The chart shows that on the Locating Information test, 42.9% of DP learners gained one level in 1997, and 46.7% did so in 1998. By contrast, the Child Care program, which did not use the Work Keys-related PLATO curriculum, showed a decline of 5.3% in 1998.

Chart 8 shows the percentage of learners who progressed one level on the *Work Keys Reading for Information* test.



The chart shows that on the Reading for Information test, 23.8% of DP learners gained at least one level in 1997, and 26.7% did so in 1998. By contrast, 16% of learners in the Child Care program, which did not use the PLATO *Work Keys* alignment, declined at least one level in 1998.

Chart 9 shows the percentage of learners who progressed one level on the *Work Keys Applied Mathematics* test.

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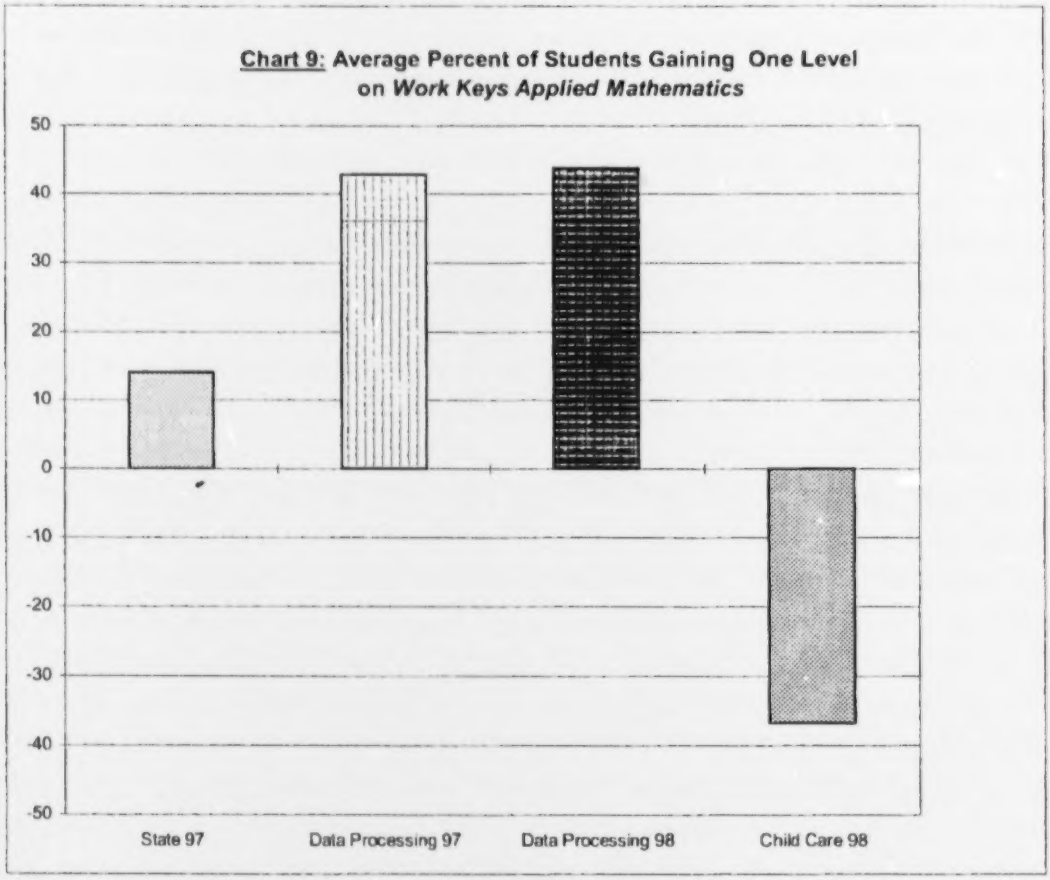

The chart shows that on the Applied Mathematics test, 42.9% of DP learners gained at least one level in 1997, and 43.8% did so in 1998. This compares with a decline of at least one level by 36% of Child Care learners, where the PLATO *Work Keys* curriculum was not emphasized.

Conclusions &Discussion

While a more detailed analysis of learner data is planned for the near future, some conclusions about the program at Columbus Career Centers, and particularly at Fort Hayes, are possible now.

The results obtained over two academic years and four programs in Columbus exceeded state-wide results consistently and by a wide margin. While the percentage of learners gaining one level statewide actually declined from 1995 to 1997, the Career Center's program saw between 23% and 46% of its learners advance by at least one level.

The results at the Ft. Hayes MEC are even more impressive. At Ft. Hayes MEC, learners in the Child Care career track, who used PLATO in a different manner, showed a pattern of declines. The learners in the AEP lab showed gains comparable to the average of all four AEP labs. The learners in the Data Processing program, who used only PLATO, showed the broadest pattern of gains. For many reasons, results were greater in a PLATO-only lab than in labs using a combination of instructional software including PLATO.

The program structure used in the AEP labs and the Fort Hayes Data Processing lab appear to be good examples of the PLATO *Skill Building* instructional model. Of the four instructional models which have been described for using the PLATO system, the skill building model is designed to produce the largest measurable skill gains. The results at the Columbus Career Centers appear to confirm the effectiveness of this model for the use of PLATO. Furthermore, the lesser results shown by the Child Care program, which used PLATO for a different goal, appears to provide evidence that when the parameters of the instructional models are not met, results using PLATO are depressed. Again, this tends to confirm the importance of the instructional models as a guide to effective implementation of PLATO.

An additional important factor is professional development. All instructors (not just the AEP lab instructors) were trained on what the *Work Keys* system is and how to interpret the results. They are very aware of area employers that are currently administering the *Work Keys* test as part of their hiring practices. Contrast this with the situation often found in educational programs, where state-mandated tests are given as required, but there is no staff development or emphasis on use of the results to improve the program, and the results are merely filed away without any additional consideration. Instructors and administrators simply "put up with" the requirement, rather than understanding its purpose and using it as intended by policy makers.

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